

# IIT Kanpur develops touch-sensitive watch for the visually impaired

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Timely touch: The watch conveys the time by vibrating when a person touches the right spoke.

Two researchers from IIT Kanpur have developed a touch-sensitive, tactile, haptic watch that can help visually impaired people learn what time it is by touching the face. The watch makes up for two of the disadvantages of watches made for the use of visually challenged people: first, the lack of privacy in watches that audibly announce the time and second, the large sizes of touch sensitive watches.

The prototypes were developed by Siddhartha Panda, who is a professor at the Department of Chemical Engineering and the National Centre for Flexible Electronics at IIT Kanpur, and Vishwaraj Srivastava who is a Senior Project Associate at the Centre.

## Telling time

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The watch conveys the time in the form of vibrations when a person touches the right spoke on the face. For instance, if the time is 6.15, the watch gives a vibration of slightly long duration when the sixth spoke is touched and a short vibration when the third spoke is touched. “The watches have resolution of five minutes right now, but with an improvement we are planning, the resolution can go up to one minute,” says Mr Srivastava. They have filed for a patent for the watch.

Not just the simple watch, the researchers have also developed a prototype smart watch which can, in addition to telling the time, measure vital health parameters.

They started working on the watches only in September 2020 as a part of an older and longer project to develop a tool that would help a visually challenged person interface with a computer. “This was basically the low-hanging fruit,” says Prof. Panda, about the project. “The interface is more complicated and is in the process of being developed.”

The watch has been tested with the help of a person from IIT Kanpur who is visually challenged. They plan to have a more formal testing done soon.

The other project – a computer user-interface that is friendly to visually impaired users - is gaining ground. The device consists of a wearable headset or headband, to which is attached a camera eye, and a haptic glove. The word haptic refers to technology that enables transmission and reception of information through touch.

## Virtual screen

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By coupling the camera to the touch-sensitive glove, visually challenged users can be helped to navigate a virtual screen spread out before them. Further if this virtual screen is coupled to a smart phone or ATM, they can operate the same even if they are not able to see it. This device is still in the works.

Both Mr. Srivastava and Prof. Panda say that the projects are close to their hearts as they have been deeply affected by people close to them with visual impairment.

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